

What is claimed is:

1        1.    A method of providing electrostatic discharge protection  
2        for an integrated circuit, comprising:

3            mounting an integrated circuit die on a lead frame;  
4            encapsulating at least part of the integrated circuit die  
5        with a plastic or epoxy material; and

6            folding a portion of the lead frame around sides of the  
7        encapsulated integrated circuit die and over or adjacent to a  
8        peripheral upper surface of the plastic or epoxy material.

1        2.    The method of claim 1, further comprising:

2            connecting the portion of the lead frame folded around  
3        the sides of the encapsulated integrated circuit die and over  
4        or adjacent to the peripheral upper surface of the plastic or  
5        epoxy material to a ground voltage.

1        3.    The method of claim 1, wherein the step of encapsulating  
2        at least part of the integrated circuit die with a plastic or  
3        epoxy material further comprising:

4            after mounting the integrated circuit die on the lead  
5        frame, encapsulating exposed surfaces of the integrated  
6        circuit die except for a sensing surface; and

7            encapsulating wire bonds connecting the integrated  
8        circuit die to portions of the lead frame.

1        4.    The method of claim 1, wherein the step of folding a  
2        portion of the lead frame around sides of the encapsulated  
3        integrated circuit die and over or adjacent to a peripheral  
4        upper surface of the plastic or epoxy material further  
5        comprising:

6            folding portions of the lead frame around each side of  
7        the encapsulated integrated circuit die.

1        5.    The method of claim 1, wherein the step of folding a  
2        portion of the lead frame around sides of the encapsulated  
3        integrated circuit die and over or adjacent to a peripheral  
4        upper surface of the plastic or epoxy material further  
5        comprising:

6                folding a first portion of the lead frame around a first  
7        side of the encapsulated integrated circuit die, wherein the  
8        first portion includes an opening providing access for a  
9        connector to pins electrically connected to the integrated  
10       circuit die.

1        6.    The method of claim 1, wherein the step of folding a  
2        portion of the lead frame around sides of the encapsulated  
3        integrated circuit die and over or adjacent to a peripheral  
4        upper surface of the plastic or epoxy material further  
5        comprising:

6                folding portions of the lead frame around edges of the  
7        encapsulated integrated circuit die not including leads  
8        electrically connected to the integrated circuit die.

1        7.    The method of claim 1, wherein the step of folding a  
2        portion of the lead frame around sides of the encapsulated  
3        integrated circuit die and over or adjacent to a peripheral  
4        upper surface of the plastic or epoxy material further  
5        comprising:

6                folding a first portion of the lead frame around a side  
7        of the encapsulated integrated circuit die; and

8                folding a second portion of the lead frame extending from  
9        the first portion over a peripheral upper surface of the  
10       encapsulated integrated circuit die.

1        8.    The method of claim 1, wherein the step of folding a  
2        portion of the lead frame around sides of the encapsulated  
3        integrated circuit die and over or adjacent to a peripheral

4 upper surface of the plastic or epoxy material further  
5 comprising:

6 folding a first portion of the lead frame around a side  
7 of the encapsulated integrated circuit die; and

8 folding a second portion of the lead frame extending from  
9 the first portion adjacent to and level with a peripheral  
10 upper surface of the encapsulated integrated circuit die.

1        9.    An integrated circuit package, comprising:  
2            an integrated circuit die mounted on a lead frame; and  
3            a plastic or epoxy material encapsulating at least part  
4 of the integrated circuit die,  
5            wherein a portion of the lead frame is folded around  
6 sides of the encapsulated integrated circuit die and over or  
7 adjacent to a peripheral upper surface of the plastic or epoxy  
8 material.

1        10. The integrated circuit package of claim 9, further  
2 comprising:  
3            a connection between a ground voltage and the portion of  
4 the lead frame folded around the sides of the encapsulated  
5 integrated circuit die and over or adjacent to the peripheral  
6 upper surface of the plastic or epoxy material.

1        11. The integrated circuit package of claim 9, wherein the  
2 plastic or epoxy material encapsulates exposed surfaces of the  
3 integrated circuit die except for a sensing surface and wire  
4 bonds connecting the integrated circuit die to portions of the  
5 lead frame.

1        12. The integrated circuit package of claim 9, wherein  
2 portions of the lead frame are folded around each side of the  
3 encapsulated integrated circuit die.

1        13. The integrated circuit package of claim 9, wherein a  
2 first portion of the lead frame folded around a first side of  
3 the encapsulated integrated circuit die includes an opening  
4 providing access for a connector to pins electrically  
5 connected to the integrated circuit die.

1        14. The integrated circuit package of claim 9, wherein  
2 portions of the lead frame are folded only around edges of the

3 encapsulated integrated circuit die not including leads  
4 electrically connected to the integrated circuit die.

1 15. The integrated circuit package of claim 9, wherein:  
2 a first portion of the lead frame is folded around a side  
3 of the encapsulated integrated circuit die; and  
4 a second portion of the lead frame extending from the  
5 first portion is folded over a peripheral upper surface of the  
6 encapsulated integrated circuit die.

1 16. The integrated circuit package of claim 9, wherein:  
2 a first portion of the lead frame is folded around a side  
3 of the encapsulated integrated circuit die; and  
4 a second portion of the lead frame extending from the  
5 first portion is folded adjacent to and level with a  
6 peripheral upper surface of the encapsulated integrated  
7 circuit die.

1 17. An integrated circuit package, comprising:  
2 a lead frame including a die paddle and portions  
3 extending from the die paddle;  
4 an integrated circuit die mounted on the die paddle;  
5 a plastic or epoxy material encapsulating exposed  
6 surfaces of the integrated circuit die except for a sensing  
7 surface,  
8 wherein the portions of the lead frame extending from the  
9 die paddle are folded around sides of the encapsulated  
10 integrated circuit die and over or adjacent to peripheral  
11 upper surfaces of the encapsulated integrated circuit die.

1 18. The integrated circuit package of claim 17, wherein the  
2 lead frame includes pins or leads and the portions extending  
3 from the die paddle include openings around the pins or leads.

1 19. The integrated circuit package of claim 17, wherein the  
2 lead frame includes pins or leads and the portions extending  
3 from the die paddle project from peripheral edges of the die  
4 paddle not adjacent to the pins or leads.

1 20. A lead frame strip for an integrated circuit package,  
2 comprising:

3 at least one lead frame, the lead frame including:

4 a die paddle on which an integrated circuit will be  
5 mounted;

6 a plurality of structures which will be formed into  
7 pins or leads for the integrated circuit package; and

8 portions extending from the die paddle which will be  
9 folded around sides of the integrated circuit package and  
10 over or adjacent to a peripheral upper surface of the  
11 integrated circuit package to form an electrostatic  
12 discharge ring.